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ABSTRACT

Differences in the prediction of academic achievement between traditional and older undergraduate students are examined. Central tendency and correlational statistics were used to analyze the independent variables using college grade-point average as the dependent variable. Data were analyzed separately for freshmen and transfer students as well as for males and females. Results include the following: older students exhibit higher relative academic achievement; there are differences in pattern and degree of predictability of these students; and these differences appear to be sex related. These findings show the need to evaluate predictive criteria for the increasing numbers of mature students. (Author/LBH)

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PREDICTION OF ACADEMIC SUCCESS FOR MATURE STUDENTS[1]

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PREDICTION OF ACADEMIC SUCCESS FOR MATURE STUDENTS

There are increasingly large numbers of older students on college campuses. Many factors contribute to this trend. High school students are deciding to stop out for a period of time before going on to college. Many adults are deciding to begin college later in life, or complete their previously interrupted college education. Others are coming back for retraining in different vocational fields, for upgrading of job skills, as well as for their own enrichment. The current economic situation contributes to this trend. Large numbers of under-or unemployed people with time on their hands are beginning to consider some type of post-secondary education. The general population has more descretionary leisure time than ever before. Also, because of declining birth rates the median age of the general population is increasing. All of these factors, when taken together, tend to indicate that there will continue to be large numbers of mature students on college campuses.

Because of this trend there is a need for data on the success of these students at college. Because they come from such diverse backgrounds and with many different motivations as well as purposes, it should not be assumed that the traditional academic measures will have predictive validity for these students. There exists a need to examine anew what factors contribute to the academic success of these mature students. Or if, in fact, there are any factors which are useful in the prediction of academic achievement for the older student. This study is an attempt to explore the predictive validity of some of these factors.

Specifically, this study was conducted to shed light on the following questions. First, is The University of Michigan (U-M) attracting more older

students? Second, is there a difference between the academic achievement of the younger and older students? Third, do the variables used to predict academic success for younger students also contribute to the prediction of similar achievement for these older students? Fourth, are there sex-related differences in the prediction of academic success for such students?

REVIEW OF THE RESEARCH

Negative Findings on Prediction

Results of a study at Macomb County Community College, Michigan, (Ice, 1971) suggested that high school grade-point average (GPA) and American College Testing program (ACT) test scores correlations with college GPA were not sufficiently high to warrant their use as exclusive criteria for prediction with mature adult applicants. This study found that even though young adults and mature adults had similar high school records, the mature students overall compiled a better college GPA. The studies by Ryan (1969) and Winslow (1968) also found that high school GPA was not a good predictor of college GPA for adult students. Stephen and Wheeler (1969), as well as Groehke (1969), in addition, concluded that ACT test results were not as highly correlated with college GPA for mature students as for young students. These studies, when taken together, indicate that the two most common measures of past academic achievement are not predictive of future college achievement for the adult student.

itive Findings

Most research conducted on young versus mature students tends to indicate that the older students do at least as well, and better in some instances, than their more traditional counterparts (Fagin, 1971; Ferguson, 1966; Halfter, 1962; Hall, 1970; Perkins, 1971, Reed and Murphy, 1975; Ryan, 1969;

Sensor, 1964; Stephen and Wheeler, 1969; Winslow, 1968).

Unfortunately, while many studies suggest basing admission of nontraditional students on variables other than prior academic achievement, there is little evidence of studies reporting on the predictive validity of these variables for nontraditional students. Some suggested variables include scholastic motivation and willingness to spend time on education (Halfter, 1962), personal interviews, post high school experiences (Waters, 1971), references or recommendations of an employer (Reed and Murphy, 1975), more maturity, and clearer goals (Ferguson, 1966).

There is more substantial evidence on sex differences in the prediction of academic success. Paraskevopoulos and Robinson (1970) found that while "the coefficients of the separate regression equations for men and women were not significantly different . . . the intercepts of the two separate equations were statistically significant (p. 215)." Furthermore, a study by Gross, Faggen, and McCarthy (1974) indicated that females are more predictable than males in academic settings.

The research cited above tends to indicate, in summary, that there are large differences between younger and older college students in their academic achievement and predictability of such achievement.

METHOD

Subjects

For this study, the older or nontraditional student was defined as an undergraduate student who is 22 years of age or older at the time of first enrollment at The University of Michigan. It should be noted that this makes the junior level transfer student only several years "nontraditional" since the traditional junior-level transfer student is only 19 or 20 years old.

The nontraditional students who entered The University of Michigan during the calendar years 1971 through 1974 were compared with undergraduate entrants to The University of Michigan during the same years.

RESULTS AND DISCUSSION

Table I gives a summary of the numbers of older students initially enrolling as undergraduates at The University of Michigan during the years 1971 through 1974. Analysis of this table indicates an overall picture of increasing numbers as well as percentages of older students enrolling at The University of Michigan. While there are some inconsistencies in this trend, for example freshman males applying for entry during 1974 and female and male transfer students applying for admission during the 1972 calendar year, the data is reasonably consistent. This data suggests that university administrators should be aware of the unique needs of and provide additional special services for these nontraditional students.

(Insert Table I here)

Is there a difference between the academic achievement of these older students and their younger counterparts? In terms of past academic achievement, analysis of Table II (freshmen) and Table III (transfer students) shows significant differences between the academic qualifications of younger and older students. Younger freshmen (Table II) admitted to the University have almost (.84) a full grade higher mean grade-point average in high school (GPA). Their mean high school percentile rank (HSPR) places them in the top 12 percent of their class, while the nontraditional students are, on the average, around the 50th percentile. Younger freshmen also do much better on the Scholastic Aptitude Test (SAT) than older freshmen, though the differences in the Verbal subscores (SAT V) are not nearly as large as for the Math subscores

(SAT M). It is interesting to note, furthermore, that the standard deviation, that is, the spread of grades, is considerably greater for the older freshmen in all variables.

(Insert Tables II and III here)

Table III indicates an analogous situation for students transferring into the University. Older students have a lower prior college mean grade-point average and a greater spread of grades than their younger counterparts. It is clear from both Tables II and III that older students enrolling at the University present considerably poorer academic qualifications at the time of admission. How do these students fare in the University classrooms?

Table IV presents data on the academic success of students as measured by the first year University of Michigan grade-point average (UM-GPA) on a 0.0 - 4.0 scale. The data in Table IV is clear with respect to females. Whether they apply as freshmen or transfer students older women earn a slightly better mean grade-point at the University (UM-GPA) than their more traditional counterparts. For males the situation is less clearcut. The younger freshman males have a considerably higher mean U-M grade-point average than older freshman males. but male transfer students earn the same mean grade-point average whether they are younger or older.The standard deviations are slightly larger for nontraditional students, whether they are males or females, freshmen or transfer students.

(Insert Table IV here)

When data from Tables II, III, and IV are compared it becomes evident that even though older students are admitted with lower academic qualifications they perform relatively -- to these qualifications -- better than do younger students relatively to their academic qualifications. For freshmen, the decrease in mean grade-point average from high school to college is .57 for

young students while older freshmen increase their mean grade-point average .15. The mean grade-point average decrease from their prior college to U-M is .27 for traditional transfer students, while older students transferring to the University exhibit no change in their mean grade-point average. Thus, older students do relatively better as a group than their younger, more traditional counterparts. While older students do relatively better academically, the question remains, are they as predictable?

Analysis of Table V and Table VI for freshmen and Table VII for transfer students indicates that, first, traditional freshmen and transfer students are significantly predictable. For freshmen (Table V) and transfer students (Table VII) all of the independent variables studies are significantly correlated ($p < .01$) with the dependent variable -- UM-GPA. The regression analysis (Table VI) also points to the significant predictability of first year grades for young students, be they freshmen or transfers to the University. The dependent variable of the regression equation is, of course, the first year U-M grade-point average. The independent variables includes HSGPA, HSPR, SAT-V, and SAT-M. The pattern of predictability is less clear for the older, non-traditional students.

(Insert Tables V and VI here)

For older freshmen, Table V indicates that there is only one independent variable, SAT verbal score, significantly correlated ($p < .01$) with UM-GPA for females and none for males. Table VI shows that UM-GPA for older females is somewhat predictable ($p < .05$) but not significantly predictable for older males. It is interesting to note (Table IV) that for the older female freshmen the SAT verbal score accounts for most of the variance and that these older freshman females are the most predictable freshman group studied.

(Insert Table VII here)

Correlations for older transfer students are presented in Table VII. This table indicates that for older transfer students prior grade-point average is not significantly correlated with grades for females but is for males, the reverse of the pattern for older freshmen.

One can conclude from the above analysis that not only is there a difference in predictability of first year GPA for younger and older students at The University of Michigan but also that there are differences in predictability between freshmen and transfers and between females and males.

SUMMARY

Results of this study indicate the following. First, The University of Michigan is enrolling ever increasing numbers of students who are 22 years of age or older. Second, these students exhibit higher relative achievement than their more traditional counterparts. Next, there are differences in the pattern and degree of predictability for these older students when compared with the younger, more traditional students. Finally, these differences in the pattern and degree of predictability appear to be sex related.

Because of their ever increasing numbers, there is a need for increased services to these students new to the collegiate scene. Colleges and universities need to continually evaluate the adequacy of their programs which aid the transition of the nontraditional student from the "outside world" to college. There should be ongoing research on and monitoring of these students. Finally, there should be comparable data collected at other institutions to validate the above findings.

Table I

Number of Older Students Enrolling[2] as Undergraduates

at The University of Michigan

	Freshmen						Transfer Students					
	Female		Male		Total		Female		Male		Total	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
1971	12	(.6)	7	(.3)	19	(.4)	128	(18.1)	161	(21.2)	289	(19.7)
1972	21	(1.0)	6	(.2)	27	(.6)	104	(13.7)	142	(15.3)	24	(14.6)
1973	29	(1.3)	18	(.7)	47	(1.0)	195	(23.6)	222	(22.5)	417	(23.0)
1974	36	(1.7)	16	(.6)	52	(1.1)	183	(23.0)	256	(24.9)	439	(24.1)

Table II

High School Grade-Point Average, Class Rank, and SAT Scores

for Traditional and Older Freshmen

	HSGPA[3]			HSPR			SAT V			SAT M		
	(N)	Mean	S.D.	(N)	Mean	S.D.	(N)	Mean	S.D.	(N)	Mean	S.D.
Traditional												
Female	(8484)	3.46	.38	(8528)	89	12.2	(8357)	541	96	(8355)	554	94
Male	(9973)	3.35	.44	(10045)	86	14.7	(9843)	547	94	(9843)	621	91
Total	(18457)	3.40	.42	(18573)	88	13.7	(18200)	544	95	(18198)	590	98
Older Students												
Female	(79)	2.72	.66	(98)	56	34.4	(74)	534	115	(74)	444	111
Male	(35)	2.20	.69	(47)	39	31.7	(36)	509	126	(36)	501	128
Total	(114)	2.56	.71	(145)	50	34.3	(110)	526	119	(110)	462	119

Table III

Prior College Grade-Point Average

for Traditional and Older Transfer Students

	Prior GPA					
	Traditional			Older		
	(N)	Mean	S.D.	(N)	Mean	S.D.
Female	(2476)	3.16	.43	(609)	2.89	.56
Male	(2917)	3.07	.47	(776)	2.87	.53
Total	(5393)	3.11	.45	(1385)	2.88	.54

Table IV

University of Michigan Cumulative Grade-Point Average[4]

	Freshmen			Transfer		
	(N)	Mean	S.D.	(N)	Mean	S.D.
Traditional						
Female	(7434)	2.87	.63	(2116)	2.97	.66
Male	(8928)	2.80	.69	(2629)	2.73	.72
Total	(16362)	2.83	.66	(4745)	2.84	.70
Older						
Female	(70)	2.91	.64	(568)	3.06	.67
Male	(31)	2.26	.78	(678)	2.73	.81
Total	(101)	2.71	.75	(1246)	2.88	.77

Table V

Correlations Between Predictors and Criterion for Freshmen[5]

Freshmen Females

	HSGPA	HSPR	SAT V	SAT M	UM-GPA
HSGPA	-----	.73*	.32*	.2 *	.42*
HSPR	.73*	----	.24*	.33*	.31*
SAT V	.55*	.47*	----	.57*	.36*
SAT M	.7	.34	.63*	----	.35*
UM-GPA	.19	.10	.48*	.17	----

(N=7280 for traditional females, N=36 for older females)

Freshmen Males

	HSGPA	HSPR	SAT V	SAT M	UM-GPA
HSGPA	----	.75*	.32*	.37*	.44*
HSPR	.91*	----	.25*	.31*	.32*
SAT V	-.29	-.33	----	.54*	.33*
SAT M	.32	.34	.57*	----	.33*
UM-GPA	.19	.07	-.17	.04	----

(N=8747 for traditional males, N=21 for older males)

* $p < .01$

Table VI

Regression Analysis for Freshmen

	N	F	Signif.	Mul R.[6]	% of Variance Accounted for
Young					
Females	7280	572.74	.000	.489	.24
Males	8747	696.46	.000	.492	.24
Older					
Females	36	3.00	.033	.528	.28
Males	21	.90	.488	.428	.18

Table VII

Correlations Between Prior and U-M Grade-Point Average for Transfer Students

Traditional Students	r	(N)
Female	.36*	(1971)
Male	.43*	(2458)
Total	.41*	(4429)
Older Students		
Female	.11	(445)
Male	.13*	(566)
Total	.12*	(1011)

* $p < .01$

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FOOTNOTES

[1]The author wishes to express his thanks to Lance Erickson and Marilyn McKinney for their helpful comments and suggestions.

[2]Actually, students who have paid their enrollment deposit and thus give evidence of their intention to enroll.

[3]Academic subjects only.

[4]After 1-3 terms of enrollment, depending on initial term.

[5]Traditional students are above diagonal, older students below it.

[6]Independent variables included are HSGPA, HSPR, SAT V, SAT M.